

Dell™ PowerEdge™ Cluster  
SE500W Systems  
**Platform Guide**

# Notes, Notices, and Cautions



**NOTE:** A NOTE indicates important information that helps you make better use of your computer.



**NOTICE:** A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



**CAUTION:** A CAUTION indicates a potential for property damage, personal injury, or death.

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**CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. Before performing any procedure, see your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

This document provides information for installing and connecting peripheral hardware components to your Dell™ PowerEdge™ Cluster SE500W solution. The configuration information in this document is specific to Microsoft® Windows® 2000 Advanced Server and Windows Server™ 2003 operating systems.

This document provides the following information:

- Dell PowerVault™ storage systems and PowerEdge systems that support Cluster SE500W configurations
- Peripheral Component Interconnect (PCI) slot information for installing Redundant Array of Independent Disks (RAID) controllers in your cluster nodes



**NOTE:** Configurations not listed in this document may not be certified or supported by Dell or Microsoft.



**NOTE:** In this guide and in other cluster documentation, the Microsoft Cluster Service (for Windows 2000 Advanced Server or Windows Server 2003) is also referred to as Microsoft Cluster Services (MSCS).



**NOTE:** Reference to Windows Server 2003 in this guide, implies reference to Windows Server 2003 Enterprise and Enterprise x64 Editions, Microsoft Windows Server 2003 R2 Enterprise and Enterprise x64 Editions, unless explicitly stated.

## Supported Cluster Configurations

This section provides information about supported configurations for your PowerEdge cluster.

Table 1-1 provides a list of supported cluster configurations for the Cluster SE500W solutions running Windows 2000 Advanced Server or Windows Server 2003.



**NOTE:** Two cluster nodes in the same cluster must be of the same system model.

**Table 1-1. Supported Cluster Configurations**

| PowerEdge Cluster | Supported PowerEdge Systems                                                                    | Supported Storage Systems | Supported Cluster Interconnect (for the Private Network)                                                                                                                                                                             |
|-------------------|------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SE500W            | 1650, 1750, 1800, 1850, 1950, 2600, 2650, 2800, 2850, 2900, 2950, 4600, 6600, 6650, 6800, 6850 | PowerVault 220S and 221S  | Any Network Interface Card (NIC) supported by the system<br><b>NOTE:</b> All nodes in the same cluster must use homogeneous (identical) NICs for the cluster interconnect. NIC teaming on the Private Interconnect is not supported. |



**NOTE:** Microsoft Windows Server 2003 Enterprise x64 Edition and Windows Server 2003 R2 Enterprise x64 Edition are supported on PowerEdge 1800, 1850, 1950, 2800, 2850, 2900, 2950, 6800, and 6850 systems only.

## Rules and Guidelines

When configuring your cluster, both cluster nodes must contain identical versions of the following:

- Operating systems and service packs
- Hardware, drivers, and firmware for the network adapters, RAID controllers, and any other peripheral hardware components
- Management utilities, such as Dell OpenManage™ systems management software



**NOTE:** The PowerEdge Cluster SE500W supports up to two PowerEdge expandable RAID Controller (PERC) 4/DC or PERC 4e/DC adapters in a single cluster node. However, Dell does not support use of PERC 4/DC and PERC 4e/DC adapters together in the PowerEdge Cluster SE500W solution.

## Service Pack Support

See "Dell Cluster Configuration Support Matrix" for the supported service pack version. You can download the latest service pack from Microsoft Support website at [www.support.microsoft.com](http://www.support.microsoft.com).

# Installing Peripheral Components in Your PowerEdge Cluster Node

This section provides configuration information for adding RAID controllers to your cluster node PCI expansion slots.

## Adding Peripherals to Your PowerEdge Cluster Nodes



**CAUTION:** Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.



**NOTE:** To ensure that the Small Computer System Interface (SCSI) or RAID controller attached to the boot drives initializes first, you might have to change the device controller priority order using the system BIOS utility or physically change the order of the RAID adapters. This process ensures that the Windows operating system numbers the boot drives in the proper sequence.

Table 1-2 provides a list of the supported RAID adapters for Cluster SE500W configurations.

**Table 1-2. Supported RAID adapters for Cluster SE500W Configurations**

| <b>PowerEdge System</b> | <b>PERC 4/DC (PCI)</b> | <b>PERC 4e/DC (PCI Express (PCIe))</b> |
|-------------------------|------------------------|----------------------------------------|
| 1650                    | X                      |                                        |
| 1750                    | X                      |                                        |
| 1800                    | X                      | X                                      |
| 1850                    | X <sup>a</sup>         | X <sup>b</sup>                         |
| 1950                    |                        | X <sup>b</sup>                         |
| 2600                    | X                      |                                        |
| 2650                    | X                      |                                        |
| 2800                    | X                      | X                                      |
| 2850                    | X <sup>a</sup>         | X <sup>b</sup>                         |
| 2900                    |                        | X                                      |
| 2950                    |                        | X <sup>c</sup>                         |
| 4600                    | X                      |                                        |
| 6600                    | X                      |                                        |
| 6650                    | X                      |                                        |
| 6800                    | X                      | X                                      |
| 6850                    | X                      | X                                      |

<sup>a</sup> The PowerEdge system must have a PCI-X riser installed in order to use this RAID adapter.

<sup>b</sup> The PowerEdge system must have a PCIe riser installed in order to use this RAID adapter.

<sup>c</sup> The PowerEdge system may have either a PCI-X or a PCIe riser installed to use one PERC 4e/DC. If two PERC 4e/DC adapters are required, the system must have the PCIe riser installed.

Table 1-3 provides a list of PCI slot configurations for Cluster SE500W configurations.

**Table 1-3. PCI Slot Configurations for PowerEdge Cluster Nodes**

| PowerEdge System | Riser Board Option | Slot  | Slot Type | Slot Speed                                                                                               |
|------------------|--------------------|-------|-----------|----------------------------------------------------------------------------------------------------------|
| 1650             | Any                | 1     | PCI       | 64-bit, 66 MHz<br><i>or</i><br>32-bit, 33 MHz                                                            |
|                  |                    | 2     | PCI       | 64-bit, 66 MHz                                                                                           |
| 1750             | Any                | 1     | PCI-X     | 64-bit, 133 MHz<br><i>or</i><br>64-bit, 33 MHz                                                           |
|                  |                    | 2     | PCI       | 64-bit, 133 MHz                                                                                          |
| 1800             | N/A                | 1     | PCI       | 64-bit, 66 MHz                                                                                           |
|                  |                    | 2     | PCIe      | 2.5-GHz x4-lane                                                                                          |
|                  |                    | 3     | PCIe      | 2.5-GHz x8-lane                                                                                          |
|                  |                    | 4     | PCI       | 32-bit, 33 MHz                                                                                           |
|                  |                    | 5 – 6 | PCI-X     | 64-bit, 100 MHz                                                                                          |
| 1850             | Standard           | 1     | PCI-X     | 64-bit, 133 MHz                                                                                          |
|                  |                    | 2     | PCI-X     | 64-bit, 100 MHz                                                                                          |
|                  | PCI-X with ROMB    | 1     | PCI-X     | 64-bit, 133 MHz                                                                                          |
|                  |                    | 2     | PCI-X     | 64-bit, 100 MHz                                                                                          |
|                  | PCIe with ROMB     | 1     | PCIe      | 2.5-GHz x4-lane                                                                                          |
|                  |                    | 2     | PCIe      | 2.5-GHz x8-lane                                                                                          |
| 1950             | PCI-X              | 1 – 2 | PCI-X     | 64-bit, 133MHz                                                                                           |
|                  | PCIe               | 1 – 2 | PCIe      | 2.5-GHz x8-lane                                                                                          |
| 2600             | N/A                | 1     | PCI       | 32-bit, 33 MHz                                                                                           |
|                  |                    | 2 – 5 | PCI-X     | 64-bit, 100 MHz                                                                                          |
|                  |                    | 6 – 7 | PCI-X     | 64-bit, 133 MHz                                                                                          |
| 2650             | N/A                | 1     | PCI-X     | 64-bit, 100 MHz                                                                                          |
|                  |                    | 2 – 3 | PCI-X     | 64-bit, 133 MHz<br><b>NOTE:</b> Slot 1 must be empty for slot 2 to attain an operating speed of 133 MHz. |
| 2800             | N/A                | 1     | PCI       | 32-bit, 33 MHz                                                                                           |
|                  |                    | 2 – 5 | PCI-X     | 64-bit, 133 MHz                                                                                          |
|                  |                    | 6     | PCIe      | 2.5-GHz x4-lane                                                                                          |
|                  |                    | 7     | PCIe      | 2.5-GHz x8-lane                                                                                          |

**Table 1-3. PCI Slot Configurations for PowerEdge Cluster Nodes (continued)**

| PowerEdge System | Riser Board Option | Slot    | Slot Type | Slot Speed                                                                 |
|------------------|--------------------|---------|-----------|----------------------------------------------------------------------------|
| 2850             | PCI-X              | 1 – 3   | PCI-X     | 64-bit, 133 MHz                                                            |
|                  |                    |         |           | <b>NOTE:</b> If slot 1 is populated, slot 2 and slot 3 operate at 100 MHz. |
|                  |                    |         |           |                                                                            |
|                  | PCIe               | 1       | PCIe      | 2.5-GHz x4-lane                                                            |
|                  |                    | 2       | PCIe      | 2.5-GHz x8-lane                                                            |
|                  |                    | 3       | PCI-X     | 64-bit, 100 MHz                                                            |
| 2900             | N/A                | 1 – 2   | PCI-X     | 64-bit, 133 MHz                                                            |
|                  |                    | 3       | PCIe      | 2.5-GHz x8-lane                                                            |
|                  |                    | 4 – 6   | PCIe      | 2.5-GHz x4-lane                                                            |
| 2950             | PCI-X              | 1       | PCIe      | 2.5-GHz x8-lane                                                            |
|                  |                    | 2 – 3   | PCI-X     | 64-bit, 133MHz                                                             |
|                  | PCIe               | 1 – 2   | PCIe      | 2.5-GHz x8-lane                                                            |
|                  |                    | 3       | PCIe      | 2.5-GHz x4-lane                                                            |
| 4600             | N/A                | 1       | PCI       | 32-bit, 33 MHz                                                             |
|                  |                    | 2 – 3   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 4 – 5   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 6 – 7   | PCI-X     | 64-bit, 100 MHz                                                            |
| 6600             | N/A                | 1       | PCI       | 32-bit, 33 MHz                                                             |
|                  |                    | 2 – 3   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 4 – 5   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 6 – 7   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 8 – 9   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 10 – 11 | PCI-X     | 64-bit 100 MHz                                                             |
| 6650             | N/A                | 1       | PCI       | 32-bit, 33 MHz                                                             |
|                  |                    | 2 – 3   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 4 – 5   | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 6       | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 7       | PCI-X     | 64-bit, 100 MHz                                                            |
|                  |                    | 8       | PCI-X     | 64-bit, 100 MHz                                                            |

**Table 1-3. PCI Slot Configurations for PowerEdge Cluster Nodes (continued)**

| PowerEdge System | Riser Board Option | Slot  | Slot Type | Slot Speed      |
|------------------|--------------------|-------|-----------|-----------------|
| 6800             | N/A                | 1     | PCIe      | 2.5-GHz x8-lane |
|                  |                    | 2     | PCI-X     | 64-bit, 133 MHz |
|                  |                    | 3 – 5 | PCIe      | 2.5-GHz x4-lane |
|                  |                    | 6 – 7 | PCI-X     | 64-bit, 100 MHz |
| 6850             | N/A                | 1     | PCIe      | 2.5-GHz x8-lane |
|                  |                    | 2     | PCI-X     | 64-bit, 133 MHz |
|                  |                    | 3 – 5 | PCIe      | 2.5-GHz x4-lane |
|                  |                    | 6 – 7 | PCI-X     | 64-bit, 100 MHz |

Table 1-4 provides a list of PCI slot assignments for Cluster SE500W configurations.

**Table 1-4. PCI Slot Assignments for PowerEdge Cluster Nodes**

| PowerEdge System | Riser Board Option | RAID adapter | PCI Slot Assignment              |
|------------------|--------------------|--------------|----------------------------------|
| 1650             | Any                | PERC 4/DC    | Any available PCI slot.          |
| 1750             | Any                | PERC 4/DC    | Any available PCI or PCI-X slot. |
| 1800             | N/A                | PERC 4/DC    | PCI/PCI-X slot 1, 5, or 6.       |
|                  |                    | PERC 4e/DC   | PCIe slot 2 or 3.                |
| 1850             | Standard           | PERC 4/DC    | PCI-X slot 1 or 2.               |
|                  | PCI-X with ROMB    | PERC 4/DC    | PCI-X slot 1 or 2.               |
|                  | PCIe with ROMB     | PERC 4e/DC   | PCIe slot 1 or 2.                |
| 1950             | PCI-X              | N/A          | N/A                              |
|                  | PCIe               | PERC 4e/DC   | PCIe slot 1 or 2.                |
| 2600             | N/A                | PERC 4/DC    | PCI-X slot 2, 3, 4, or 5.        |
| 2650             | N/A                | PERC 4/DC    | Any available PCI or PCI-X slot. |
| 2800             | N/A                | PERC 4/DC    | PCI-X slot 2, 3, 4, or 5.        |
|                  |                    | PERC 4e/DC   | PCIe slot 6 or 7.                |
| 2850             | PCI-X              | PERC 4/DC    | Any available PCI-X slot.        |
|                  | PCIe               | PERC 4e/DC   | PCIe slot 1 or 2.                |
| 2900             | N/A                | PERC 4e/DC   | Any available PCIe slot.         |
| 2950             | PCI-X              | PERC 4e/DC   | One adapter in PCIe slot 1 only. |
|                  | PCIe               | PERC 4e/DC   | Any available PCIe slot.         |



**Table 1-4. PCI Slot Assignments for PowerEdge Cluster Nodes (continued)**

| PowerEdge System | Riser Board Option | RAID adapter | PCI Slot Assignment              |
|------------------|--------------------|--------------|----------------------------------|
| 4600             | N/A                | PERC 4/DC    | Any available PCI or PCI-X slot. |
| 6600             | N/A                | PERC 4/DC    | Any available PCI or PCI-X slot. |
| 6650             | N/A                | PERC 4/DC    | Any available PCI or PCI-X slot. |
| 6800             | N/A                | PERC 4/DC    | PCI-X slot 2, 6, or 7.           |
|                  |                    | PERC 4e/DC   | PCIe slot 1, 3, 4, or 5.         |
| 6850             | N/A                | PERC 4/DC    | PCI-X slot 2, 6, or 7.           |
|                  |                    | PERC 4e/DC   | PCIe slot 1, 3, 4, or 5.         |

**NOTE:** It is recommended that the RAID adapters be placed on separate buses to balance the load on the system. These buses are identified as separate rows in Table 1-3.

## Installing the PERC Adapter

You must install the PERC 4/DC card in a 64-bit PCI/PCI-X slot up to 133 MHz or a 32-bit, 33-MHz PCI slot.

You must install the PERC 4e/DC adapter in a PCIe slot. See the I/O slot assignments in Table 1-3 and Table 1-4 for your specific system.

Ensure that your system has the correct PERC firmware and Windows driver. See the "Dell Cluster Configuration Support Matrix" for the supported PERC driver and firmware versions. To verify your driver, perform the following steps:

- 1 Click **Start**, point to **Programs**→**Administrative Tools** and click **Computer Management**.
- 2 In the **Computer Management** window, point to **System Tools**→**Device Manager**, and click the plus sign (+) to expand SCSI and RAID controllers. One or more PERC adapters are listed.
- 3 In the **Device Manager** window, right-click the appropriate PERC RAID adapter, select **Properties**, select the **Driver** tab, and verify the driver version.

See your PERC RAID adapter documentation for information about downloading the latest firmware.

### Obtaining More Information

See the section related to your cluster product for more information on supported configurations.

See the *Dell PowerEdge Cluster SE500W Installation and Troubleshooting Guide* for a detailed list of related documentation.

## **Dell Cluster Configuration Support Matrix**

The **Dell Cluster Configuration Support Matrix** provides the latest supported service pack, drivers, firmware, and operating system versions for your PowerEdge Cluster SE500W system. To obtain the supported service pack, drivers, and firmware versions for the operating system that is running on your PowerEdge Cluster SE500W cluster nodes, perform the following steps:

- 1** Open a web browser.
- 2** Navigate to the Dell High Availability Clustering website at [www.dell.com/ha](http://www.dell.com/ha).
- 3** Click the **Products and Services** tab.
- 4** Select **SCSI Clusters**.
- 5** In the **Product Offerings** window, click **SE500W**.  
The **Dell Cluster Configuration Support Matrix** for the PowerEdge Cluster SE500W appears.
- 6** In the **Operating System** column, locate the operating system that is running on your cluster nodes.

Locate the appropriate service pack, drivers, and firmware for your operating system.